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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/065,846

11/25/2002

Richard Philip Mallozzi

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08/24/2005

GENERAL ELECTRIC COMPANY
GLOBAL RESEARCH
PATENT DOCKET RM. BLDG. K1-4A59
NISKAYUNA, NY 12309

EXAMINER

RAMIREZ, JOHN FERNANDO

ART UNIT

PAPER NUMBER

3737

DATE MAILED: 08/24/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/065,846

Applicant(s)

MALLOZZI ET AL.

Examiner

John F. Ramirez

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 November 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) _____ is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11/25/2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 12/02/02.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1,2,11,16,17, and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Wischmann et al. (US 5,872,829).

In regards to claims 1 and 11, Wischmann et al. discloses a method for correcting at least one of examination images and measurements acquired by a magnetic resonance imaging (MRI) device by, imaging a phantom of known structure at selected intervals to generate phantom images (see Abstract, col. 4, lines 45-48), performing automatic analysis of the phantom images relative to images of the phantom acquired at a previous time (col. 2, lines 20-22), calculating variations between respective phantom images, and correcting the at least one of examination images and measurements using the calculated variations between phantom images (col. 2, lines 25-36). In reference to claim 2, Wischmann et al. discloses the correcting step is automatically initiated within an image processor of the MRI device (col. 1, lines 10-15; col. 2, lines 19-21). In reference to claims 16,17 and 20, Wischmann et al. discloses a system for performing Magnetic Resonance Imaging (MRI) examinations (col. 4, lines 45-48), an imaging device for acquiring images of regions of interest within a subject and a phantom of known structure (col. 6, lines 57-59; see Abstract), an image

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processor adapted to analyze images of the phantom and calculate scanner related variations and further adapted to automatically correct at least one of images of regions of interest and measurements of the regions of interest within the subject based on the calculated variations (col. 2, lines 19-36 ; col. 1 lines 10-15).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 3,6,7 and 12 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Wischmann.

In regards to claims 3,6,7 and 12 It is inherent that a phantom includes an outer structure and substructures representing different body parts and hence necessary these structures must emit different signal strengths to determine respective locations of the substructures within the respective phantom images providing information to calculate and correct changes in the locations of the substructures. In the alternative, it would have been obvious to one skilled in the art to use a phantom having multiple substructures that closely represents the human body if the correction of image of choice are those of a human body having multiple substructures and hence different signal strengths would be detected from the various substructures.

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Claims 4, 5, 8-10, 18 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wischmann et al., in view of DeCarli et al. (US 5,262,945).

In reference to claims 4, 8, 9, and 10 Wischmann et al., teaches all the limitations of the claimed subject matter except for mentioning specifically the step of acquiring images at a first imaging session and at least one successive imaging session for tracking progression of a given disease, generating corrected examination images and volume measurements are generated based on the corrected examination images, correcting volume measurements using a scaling correction map for adjusting the volume measurements, and additionally, performing longitudinal examinations of a set of anatomical structures and repeating the imaging, performing and measuring steps for at least one successive examination for tracking the measured regions of interest .

Concerning claims 5, 18 and 19, Wischmann et al., does not disclose the disease is a neurodegenerative disease and the examination images are used to generate volume measurements of a brain, and the images of the regions of interest are acquired at a first imaging session and at least one successive imaging session for tracking progression of a given disease.

However, the steps of (1) acquiring images at a first imaging session and at least one successive imaging session for tracking progression of a given disease, (2) generating corrected examination images and volume measurements are generated based on the corrected examination images, (3) correcting volume measurements using a scaling correction map for adjusting the volume measurements, (4) performing longitudinal examinations of a set of anatomical structures and repeating the imaging,

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(5) performing and measuring steps for at least one successive examination for tracking the measured regions of interest, (6) the disease is a neurodegenerative disease and the examination images are used to generate volume measurements of a brain, and (7) the images of the regions of interest are acquired at a first imaging session and at least one successive imaging session for tracking progression of a given disease are considered conventional in the art as evidenced by the teachings of DeCarli et al. (US 5,262,945).

The DeCarli et al. patent teaches the steps of acquiring images at a first imaging session and at least one successive imaging session for tracking progression of a given disease, generating corrected examination images and volume measurements are generated based on the corrected examination images, correcting volume measurements using a scaling correction map for adjusting the volume measurements, performing longitudinal examinations of a set of anatomical structures and repeating the imaging, performing and measuring steps for at least one successive examination for tracking the measured regions of interest, the disease is a neurodegenerative disease and the examination images are used to generate volume measurements of a brain, and the images of the regions of interest are acquired at a first imaging session and at least one successive imaging session for tracking progression of a given disease.

Based on the above observations, for a person of ordinary skill in the art, modifying the method disclosed by Wischmann et al., with the above discussed enhancements would have been considered obvious because such modifications would have provided a method to analyze, correct, classify and monitor regional volumes in

brain structures as they change with healthy aging and brain disease using special magnetic resonance imaging sequences.

Claims 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wischmann et al., in view of Kennedy et al. (US 5,185,809). Wischmann et al. does not disclose the step in which the regions of interest are substructures within the brain. However, the step in which the regions of interest are substructures within the brain is considered conventional in the art as evidenced by the teachings of Kennedy et al. (US 5,185,809).

The Kennedy et al. patent teaches the step in which the regions of interest are substructures within the brain.

Based on the above observations, for a person of ordinary skill in the art, modifying the method disclosed by Wischmann et al., with the above discussed enhancements would have been considered obvious because such modifications would improve MRI interpretations: sequential volumetric analyses of any structure, inflammatory or degenerative processes within the brain would provide sufficient sensitivity to identify subtle but significant changes in volume, providing more precise identification and quantification of subtle neurologic disease progression.

Claims 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wischmann et al., in view of Jack et al. (US 2003/0135105). Wischmann et al. does not disclose the step to register successive images of the anatomical structures. However, the step to register successive images of the anatomical structures is considered conventional in the art as evidenced by the teachings of Jack et al. (US 2003/0135105).

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The Jack et al. patent teaches the step to register successive images of the anatomical structures.

Based on the above observations, for a person of ordinary skill in the art, modifying the method disclosed by Wischmann et al., with the above discussed enhancements would have been considered obvious because such modifications would help compared and interpreted the magnetic resonance images acquired at different times by aligning the images during a series of examinations.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to John F. Ramirez whose telephone number is (571) 272-8685. The examiner can normally be reached on (Mon-Fri) 7:30 - 4:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian L. Casler can be reached on (571) 272-4956. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JFR

8/18/05


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